

How Socio-Economic Conditions Influence Forest Policy Development in Central and South-East Europe

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Abstract In this article, several findings on socio-economic conditions derived from national reports and a web-based questionnaire are discussed and related to the changing role of forestry and the future forest policy development. A number of Central and South-eastern European countries taking part in a SEE-ERA-NET project ReForMan project (www.reforman.de) participated in data acquisition: Austria, Bosnia and Herzegovina, Croatia, Germany, Serbia and Slovenia. The aim of

the research was to illustrate the present structure of forestry sector, as well as investigate newly emerging topics in forestry of Central and South-eastern Europe. The results indicated certain patterns in attitudes and perceptions among stakeholders that can be related to socio-economic conditions defined for each country. Clear differences between member and non-member countries exist only in level of implementation of EU legislation. Results showed consensus on main threats to the forests among all countries, but also some country specifics in perceptions of factors influencing forestry, their importance and professional competencies. These results could be additionally explained by influence of historical conditions which shaped development of forest sector in SEE region especially in its organizational dimension as well as in perceived role of forestry expressed through recognition of main forest functions. The influence of European forest policy processes in the region is evident through adaptation of EU legislation and perceived implications of international processes on national levels. Based on this observation, two possible options for future development of the forestry sector can be foreseen: (i) focusing on the productive function of forests and fostering its' sustainable use; or (ii) putting an emphasis on environmental and social issues. In both cases supporting public participation in decision-making processes is recommendable. Another conclusion based on perceived medium to low professional competencies to cope with new topics, that there is lack of confidence and need for professional support in decisionmaking processes.

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Introduction

Only a decade ago, forest management—in Europe and globally—was experiencing a paradigm shift from sustainable timber production towards a multi-dimensional understanding of sustainable forest management (SFM) (e.g. MCPFE 1998). The new challenge of forest resource management was to satisfy multiple functions and services demanded by the society (IPCC 2007; EEA 2005).

Global change, whether generated by climate change, land use change, or social or economic pressures, increases the need for understanding socio-economic processes in forest-resource management. An example is the growing demand for bio-based products like bio-fuels, bio-power and bio-products and the need to secure supplies for bio-based industries and energy production (ECCP 2005). These demands increase pressures on forest ecosystems at the same time revealing the key role of forest ecosystems in maintaining biodiversity (Stupak and others 2007). In similar manner EU directives relevant to forest-resource management, such as Natura (2000), Habitats directive (92/43/EEC) and the EU Water Framework Directive (2000/60/EC), impose conflicting objectives with regard to an adaptive management approach, striving to cope with adverse effects of changing climate.

Shifting focus of debate in Europe from total protection in segregated areas to active protection, combining timber production and other multiple uses of forest goods and services showed increasing opportunities for the forestry sector (Parviainen and Frank 2003; Führer 2000). It took time and efforts to adequately address these changes of paradigms in general used concepts such as sustainable forest management, close to nature silvicultural management, multifunctionality of forests or public participation. The concepts, if clearly defined, provide solid ground to policy experts in translating and adapting action programs or strategies from the European or international level to the national context. However, for the truly successful application of such concepts, guidelines should be adapted to the local or regional natural and socio-economic conditions considering all relevant actors for its implementation (Biro and others 2002; Patriquin and others 2007; Kouplevatskaya-Yunusova and Buttoud 2006).

Ongoing changes taking place at the European institutional framework give possibility to envision the most relevant topics for the upcoming years: (1) property and use rights in Central and South-east Europe, due to the breakdown of the socialistic systems will cause difficulties in the implementation of forest management; (2) implicit use rights for the public due to growing needs in leisure activities will raise the pressures on forest owners; and (3) implementation strategies for nature protection (e.g., designation of protected areas) will cause a gradual

withdrawal from intensive forest-management activities by the state (Kissling-Näf and Bisang 2001) and involvement of other actors in that process forcing a change from intensive to adaptive forest management (FAO 2001).

The current EU, enriched with new member countries, is characterized by an even broader variety of environmental, economic and societal conditions, influencing the forest-management approaches in different countries and their forest policies in general. In order to explore this new reality, forestry sector stakeholders from Central and South-east Europe were asked to (a) participate in a review of socio-economic conditions in their respective countries (Austria, Croatia, Germany, Serbia and Slovenia); and (b) to complete a web-based questionnaire considering international processes in forestry and nature conservation for country-specific forest management approaches (Austria, B&H, Croatia, Germany, Serbia and Slovenia).

We hope that results presented here will form the basis for identifying transferable and acceptable solutions for further policy development in the countries of Central and South-east Europe.

Materials and Methods

The materials used in this research consist of data collected using two different methods: (1) national reports on socioeconomic conditions written by experts from countries involved in the ReForMan project and (2) a web-based questionnaire completed by policy and decision makers in the respective countries.

In the National reports, all participating countries were asked to describe forest policy processes following a pre-defined semi-structured format focusing on basic natural resource data, forests ownership structure, legislative framework, economic importance of forestry, management goals and main functions of forests. The country reports were produced based on available data and expertise of forestry scientists in the participating countries. The collected data were qualitatively analyzed and interpreted.

The source of primary data was a web-based semi-structured questionnaire with multiple choice, ranking and open-ended questions, executed in a one-time survey according to the method of Borg and Gall (1989). For that purpose, the structured sample was designed, consisting of previously selected decision makers from the main institutions and organizations in each country. The link to a web address of the questionnaire was sent together with an introductory letter explaining the main purpose of the survey to all participants.

The representativeness of the collected data was checked by all project partners from the respective countries by a comparison with the corresponding information

based on national reports. The sample size was different in each country due to differing possibilities of involvement of participants; therefore, we performed descriptive statistics as frequencies and percentages, with some correlation analysis. Results will be presented on a country basis to diminish influence of variations in sample sizes. Interpretation of these quantitative results was supported by qualitative information from open-ended questions and the national reports.

By combination of the methods (qualitative and quantitative) it was possible to get better insight into the collected information (Lin and Loftis 2005) providing solid ground for objective interpretation and conclusions.

Results

National Reports on Socio-Economic Conditions

The territories of all participating countries have a significant proportion of forested land (Fig. 1). The highest percentage of forest cover has Slovenia (59.8%), followed by Austria (47.2%), Croatia (36%) and Germany (30%) whereas the smallest cover has Serbia with 23.9%. Forest types also differ: Croatia boasts over 60 various forest communities and 95% of close-to-nature-managed forests, while for Austria 125 natural forest communities are described dominated mainly with conifers, forest are comprising a substantial part of coniferous plantations as well. In Germany forest plantations formed by several coniferous species cover 66%, while deciduous species take up around 34%. However there is an intention in whole central Europe to increase the percentage of deciduous forests.

Although legal acts are formulated differently, the issues described are comparable in terms of sustainable forest management, nature protection and social services. For most of the SEE countries forest policy issues have changed rapidly after the decline of communistic regimes and led to almost rushing into adoption of new forest legislation. The special needs for co-operation with SEE countries have been declared in the Helsinki-Resolution H3 (MCPFE

1998). Based on relevant forest legislation EU member countries have developed national forest programs, which are in a different state of development in non-member countries: almost accepted in Serbia, in B&H it will be accepted in the year 2010 while in Croatia the process started in 2007 but so far without substantial results.

In Austria, the main forest legislative act is Austrian Forest Act, attributing five functions to the forest: (1) productive (i.e., sustainable timber production), (2) protective (i.e., protection against erosion and natural hazards), (3) a welfare (i.e., the protection of environmental resources such as drinking water), (4) a recreational (use for recreation) and (5) habitat (protection of forests as habitat for living organisms). In Croatia, forests and activities concerning forests and forest land are regulated by the Law on Forests. The law defines objectives and organization of public participation in the sector. It establishes financial mechanisms including (1) an obligation for all forest owners to invest at least 15% of their wood sales income for biological reproduction, and (2) an obligation for all commercial and industrial companies in Croatia to pay 0.07% tax on their turnover for investments in development of the forest sector. This fund can be used for following purposes: protection of forest amenities; restoration of degraded forests in the karst and coastal areas; research; and an extension service for private forest owners. Law for conservation and promotion of the forest industry is the overall policy framework of forestry in Germany. Since Germany is a federal state, responsibility for the forests thus mainly lies with the Federal States. While the Federal Government merely sets the forest-policy framework, the Federal States are actually responsible for the implementation of forest-policy targets.

In Slovenia, the Act on Forests provides guidelines for the preservation and development of forests and conditions for their exploitation and multipurpose use. The national forest policy and strategy is determined by National Forest Program.

Forest Law in Serbia defines wood production as main forest function with special attention given to management of forests in order to meet the social, economic, cultural and spiritual needs of the present and future generations. The newly developed National Forest Program deals with forest policy and development strategy of forestry sector.

The share of forestry in Gross Domestic Products (GDP) is quite low for all countries, ranging from 0.6% in Serbia, 0.8% in Germany, 1.3% in Croatia, 1.8% in Slovenia, 2.1% in Austria to 2.5% in B&H (FAO 2006). In contrast, non-timber forest products and services are deemed very high in most of the countries, especially in those with a large proportion of privately owned forests, such as Austria and Slovenia. In Austria forestry plays a very important role in rural development since two-thirds of the population live in rural areas, which allows to fully exploiting the

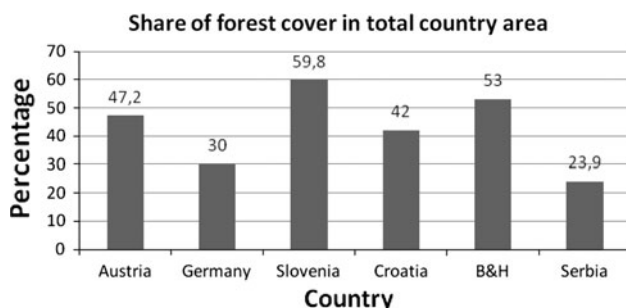


Fig. 1 Share of forest cover in total country area

possibilities offered by Agenda 2000 (1997). In Croatia, the forestry sector is a significant source for employment opportunities, especially in rural areas, and therefore has a strong impact on rural development. Forestry is the second most important type of land use in Germany (after agriculture), covering about 30% of the country's total area. Timber is also a valuable domestic source of energy, experiencing a revival in the face of the recent increases in energy prices. In Slovenia, forests are a constituent part of farm holdings, increasing the income opportunities for several thousand people who are producing traditional wood products or providing touristic services primarily in rural areas. Forests are the most important renewable source of energy in Slovenia and more than 30% of the households use wood for heating.

In contrast to many other European states, forest management in Austria is characterized by mainly private forest ownership. Private forest owners manage almost four-fifths of the Austrian forests. In Slovenia the percentage of private forests is only slightly smaller with 73%, Croatia, on the other hand has approximately 78% state-owned forests. Germany and Serbia with 47% and 52% private forests respectively lie in between.

One common trait of privately owned forest properties is their size—usually they are quite small and also fragmented. In Austria, the majority of private owners own forests up to 200 ha whereas most of the forest properties (67%) are smaller than 20 ha. In Croatia, 600,000 forest owners share 581,770 ha of forest (Paladinić and others 2008). Many forest owners in Germany own only small and fragmented forests that are hard to manage; the average size of a private forest is 5 ha, frequently spread over several parcels. The average size of a private forest property in Slovenia is 2.6 ha. The majority of private forests in Serbia are very small in size as well; about 500,000 private owners with some 5 million registered parcels indicate an average area of a privately owned forest with less than 0.5 ha.

Management of small forest properties is in general unsatisfactory. In Croatian practice private forests remain essentially unmanaged with some exceptions. Forest management is characterized by (1) a high degree of fragmentation in terms of property and responsibility as many owners reside in cities, (2) a lack of silvicultural interventions, (3) an insufficient number of owner associations, and (4) degraded forests lacking investments (Paladinić and others 2008).

In Slovenia, the number of private forest owners that do not managing their forests is increasing, although the State is providing subsidies to these owners. The problems are numerous: a shortage of forest roads and skidding tracks, an absence of forest associations supporting forest owners in the implementation of forest management and sale as well as insufficient competence and equipment lead to a

low level of innovation. An insufficient level of marketing of non-timber forest functions, missing interaction among wood-based industries and lacking awareness of wood potential cause a low contribution to the total wood production in Serbia (54% of forests contribute only 27%).

Forest owners' associations are designed to improve the economic situation of the small scaled forest owners in providing a common operational unit for forest management planning, harvesting and marketing. Austria and Germany promote this approach quite prominently, e.g. comprising some 382,900 members in 4,550 forestry associations in Germany.

Although the most prominent role of forests today is timber production, the provision of ecosystem services and functions becomes more important reflecting the changed attitudes of citizens whose preferences are profoundly different from those who managed and utilized the forests in the past.

In view of the increasing importance of forests for the society, the central aim of Austrian forest policy is to secure and improve the economic, ecological and socio-cultural functions of forests on a continuing and sustainable basis (Glück 1999). Although forests in Croatia provide a high economic, environmental and social function, there has been no national survey on the social values of forests or a calculation of the costs associated with the provision of forest amenities.

Beside wood production the forests in Serbia have a significant role through soil protection and water regulation as well as providing socio-cultural, touristic, recreational and ornamental functions. Likewise, the sound and rational use of natural resources, their conservation and healthy development are matters for forest management in Germany. It is acknowledged that forest goods and services are shaping the living environment of individuals directly by providing protection or opportunities for recreation and indirectly in conserving nature, soil, climate, and drinking water, or acting as a carbon sink.

Web-Based Questionnaire

The questionnaire was completed by 131 respondents: 11 from Austria, 11 from Germany, 16 from Slovenia, 8 from Bosnia and Herzegovina, 8 from Serbia and 77 from Croatia (where top and middle managers were also included in survey).

The aim of the questionnaire was to learn how policy and decision makers in each country perceive: (1) the roles of different actors in the forestry sector; (2) the influence of international organizations/processes on national forestry; (3) the main threats to forests; (4) the main forest functions and emerging topics; and (5) the general competencies of the forestry managers to react to these emerging questions related to forest policy.

The answers were analyzed in the context of the recent changes in forest policy in Europe and its reflection in EU-candidate countries. In that sense, two groups of countries were defined, one consisting of EU-member states (Austria, Germany and Slovenia) and the second consisting of non-member countries (Bosnia and Herzegovina, Croatia and Serbia). The survey provided insights on differences in new and future policy processes in Central and South-eastern Europe as well as on stakeholders' perceptions.

Analysis of data among countries within the same group (EU member states, non-member countries) and between the two groups (EU member states versus non-member) was used for a better understanding on how socio-economic conditions influence policy development.

Roles of Different Actors in the Forestry Sector

The forest sector structure was formulated based on description of the different institutions/organizations respondents is affiliated, with and their roles and responsibilities. The description is given in percentages per country (Tables 1, 2). In question 1, respondents were asked to state affiliation of organization/institution in

which they work with one of the following six (6) groups: (1) administration at all levels (regional or national); (2) state companies for forest management; (3) non-governmental organization (NGO); (4) small and medium enterprises (SMEs) and Industry; (5) research and development; or (6) protected areas management.

In a multiple-choice question respondents were asked to define the connection of their organization/institution to forestry by choosing from seven (7) offered answers (Table 2).

The results (Table 1) show the lack of representation for some types of organizations in several countries, such as NGOs in Austria, Germany and Croatia or Protected areas in Austria, Germany and B&H. A most complete cross section of forestry sector was presented for Slovenia and Croatia.

Overview is given by Table 2, which reveals the relation of these organizations to the forest sector. Organizations and institutions that actually create or influence forest policy, those engaged in forest management are those responsible for the management of protected areas or have an interest in creating forest policy were substantially represented.

Table 1 Structure of forest sector ($n = 124$)

Type of organizations	Austria (%)	Germany %	Slovenia %	Croatia %	B&H %	Serbia %
Regional/national level administration	27.27	21.43	31.25	7.89	49.99	0
Forest management co.	18.18	0	6.25	69.74	37.48	14.29
NGO	0	0	18.75	0	12.52	2.06
SMEs/Industry	0	28.57	31.25	2.63	0	0
Research & Development	36.36	50.00	0	6.58	0	35.71
Protected areas	0	0	12.50	13.16	0	47.93
Total						
<i>N</i>	11	11	13	74	7	8
%	100.00	100.00	100.00	100.00	100.00	100.00

Table 2 Relation of organizations/institutions to forest sector ($n = 131$)

Connection with forestry	Austria (%)	Germany (%)	Slovenia (%)	Croatia (%)	B&H (%)	Serbia (%)
Responsible for forest management	17.20	14.30	9.10	23.90	33.30	33.30
Support to private forestry	17.20	4.80	12.10	7.30	20.00	0.00
Private forest owner	13.90	4.80	3.00	1.00	0.00	0.00
Management of protected areas	13.90	9.50	24.30	15.10	0.00	16.70
Has interest in forest policy	17.20	14.30	18.20	15.60	26.70	33.30
Create or influence on forest policy	17.20	33.30	18.20	10.70	13.30	0.00
Supervision of forest management	3.40	19.00	3.00	16.10	6.70	16.70
Total						
<i>N</i>	11	11	16	77	8	8
%	100.00	100.00	100.00	100.00	100.00	100.00

International Organizations/Processes Influencing Forestry

The respondents were asked to list up to three important international organizations or policy processes influencing forestry. During the analysis, organizations and processes were aggregated into six groups. Half of them are more “EU relevant” (i.e. Natura 2000; MCPFE and EU) and other half more “globally relevant” (i.e. Forest certification, UN and WWF). Results showed impossibility to clearly differentiate between EU and accession countries (Table 3), which indicate that accession countries are under great influence of EU processes.

Additionally, respondents were asked to rank relevant factors influencing forestry according to their perception from 1—highly positive to 7—highly negative. The “increasing public interest in forestry” was commonly perceived as positive, together with “growing timber demand” and “changes in forestry administration”, meaning a redefinition of responsibilities in the forestry

sector. In all countries, “changes in land use” due to major and housing constructions were selected as negatively influencing factors (Fig. 2). An interesting result is that non-member countries ranked the “growing participation of different interest groups” as the third most negative change.

Main Threats to Forests

Respondents were asked to evaluate five main threats according to their influence on forests, from 1—very important to 5—not important at all. A general consensus was reached on importance of climate change and changes in water balance followed by increasing timber demand, globalization and urbanization (Table 4). An analysis of variance showed that there were no significant differences among the studied countries regardless of whether they were compared by country of between two groups: member and non-member countries.

Table 3 Most important institution/organization/process influencing forestry

Institution/organization/ process	Country (%)					
	Austria (N = 28)	Germany (N = 29)	Slovenia (N = 31)	Croatia (N = 120)	B&H (N = 16)	Serbia (N = 20)
Natura (2000)	14.29	10.34	38.70	15.84	0	20.00
MCPFE	21.43	10.34	3.23	7.50	6.25	5.00
EU	25.00	24.14	9.68	10.83	31.25	0
Forest certification	14.29	10.34	12.89	29.18	12.50	25.00
UN	17.86	24.14	12.89	18.33	18.75	15.00
WWF	3.57	3.45	0	1.67	6.25	25.00

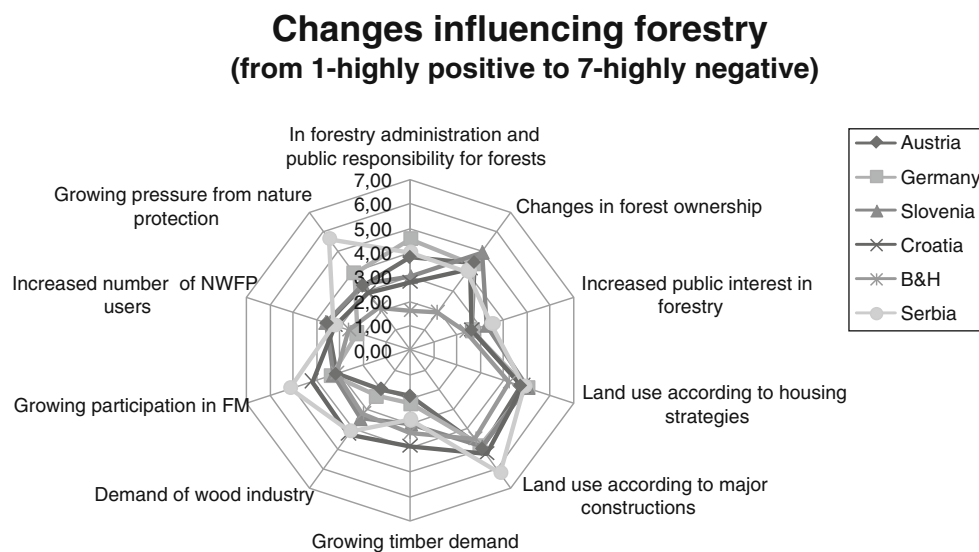


Fig. 2 Changes influencing forestry according to way of their influence

Table 4 Importance of main global threats to forests

Main global threats	Austria	Germany	Slovenia	Croatia	B&H	Serbia
<i>Average grade from 1—very important to 5—not important at all</i>						
Climate change	1.55	1.91	4.09	2.04	1.38	2.13
Globalization	3.09	2.82	4.00	2.71	2.88	3.00
Urbanization	3.09	2.45	3.55	2.65	3.13	3.63
Increasing timber demand	2.55	2.00	4.00	2.96	2.38	3.13
Changes in water balance	2.27	1.45	3.91	2.17	2.25	2.13

Table 5 Importance of forest functions and influence of forestry sector

Forest function	Country											
	Austria		Germany		Slovenia		Croatia		B&H		Serbia	
	I	FI	I	FI	I	FI	I	FI	I	FI	I	FI
<i>Mean (range from 1—high importance to 5—low importance)</i>												
Watershed function	1.27	1.91	1.36	2.18	1.00	1.63	1.30	1.70	1.63	1.75	2.00	1.75
Water purification	1.45	2.09	1.55	2.18	1.13	1.88	1.48	1.94	2.00	2.25	2.25	2.38
Air purification	2.09	2.73	1.91	2.45	1.31	2.00	1.26	1.84	1.75	1.38	2.25	2.25
Landscape creation	2.09	2.36	1.91	2.27	1.94	2.00	1.51	1.95	2.00	2.38	2.50	2.75
Biodiversity protection	1.73	2.45	1.45	1.91	1.50	1.69	1.36	1.62	1.63	1.38	1.63	1.88
Wildlife protection	2.09	2.18	1.73	2.36	1.44	1.94	1.31	1.90	1.25	1.63	2.00	2.13
Timber production	1.27	1.36	1.09	1.09	1.56	1.63	1.65	1.42	1.75	1.50	1.50	1.63
Providing non wood forest products	3.00	3.45	2.64	3.09	2.31	2.63	2.43	2.83	1.38	1.88	3.38	3.00
Social use of forests	2.00	2.18	1.55	1.64	2.13	2.31	2.00	2.60	1.25	1.88	3.25	4.13

I general importance, *FI* influence of forest sector

Main Forest Functions and New Emerging Topics

Table 5 presents the results of forest functions ranking according to their importance and the influence of the forest sector from 1—very high importance to 5—very low importance.

Bold numbers are indicating highest importance and strongest influence on forestry sector. For both variables, the strengths of scales were tested by an Alpha test and a paired sample t-test was applied on pair variables showing significant differences among all countries for all functions, with an exception for “timber production”. This confirmed the previously stated importance of the productive forest function for all countries. Base on results of Duncan Post Hoc Test mixed groups of member and non-member countries were formed according to the level of importance, respectively: Croatia, Germany and Slovenia one formed group; Austria and B&H the second while Serbia could not be associated to either of these two groups. In general, Serbian respondents ranked lowest a majority of the forest functions. A LSD Post-Hoc test applied on the “Importance” variable revealed higher differences between Serbia and all other countries.

These differences seemed to be more related to less-important forest functions (Table 5).

There are significant differences between average grades for “Importance” and “Forest sector influence” where the grades for “Importance” are in general higher than for “Forest sector influence”. Timber production, watershed protection and biodiversity protection functions are on the top of importance list and most influenced by forestry, as well. This verifies the fact that forestry in all countries is focused not only on traditional forest functions but also on ecological functions taking into account the ongoing changes in forest policy (Austrian Forest Act; National Forest Program, Slovenia; National Forest Program, Germany; National Forestry Policy and Strategy, Croatia).

Respondents were subsequently asked to identify up to three, the most important emerging topics in the forestry sector. This question was included as an indicator of EU policy processes influencing national discussions. A long list of topics were aggregated into nine groups, eight of them comprising wider topics: Biomass & Bioenergy, Climate change, Legislative changes, Nature protection (Natura 2000), Restructuring of the forest sector, Changes

in ownership, EU-related topics and Forest certification; and one comprising other rarely listed topics.

“Legislative changes” were identified by all respondents, although more frequently in non-member countries. “Climate change”, “Biomass & Bio-energy” and “Nature protection” prevailed in member countries and the “Restructuring of the forest sector” and “Changes in ownership structure” in non-member countries. However, there was no clear division between the two groups of countries, and some topics prevailing in member countries also emerged in non-member countries, e.g., Biomass and Natura 2000 in Croatia and Serbia, and, vice versa, restructuring of the forestry sector was frequently present in Slovenia and somewhat less frequent in Germany. Inclusively, two types of patterns can be identified depending on the group of topics: for some topics there was a grouping of member and non-member countries and for other topics a mixed grouping similar to that for importance of “main forest functions” was present.

Perceived Competences of Forestry Managers

Respondents were asked to evaluate their own and other forestry professional competences to respond to new demands and challenges in forest management by grades ranging from 5—very capable to 1—not capable at all. The results are presented by average grades per country revealing the highest perceived competences in Austria (4.1) followed by Slovenia (3.5) and Germany (3.5), Croatia (3.4) and Bosnia and Herzegovina (3.3). The lowest confidence level was expressed by respondents in Serbia (2.4) (Fig. 3). However, these results captured only perceived level of competence, which does not allow us to speculate about actual competences of actors in respective countries.

Competencies

5-highly capable to 1-not capable at all

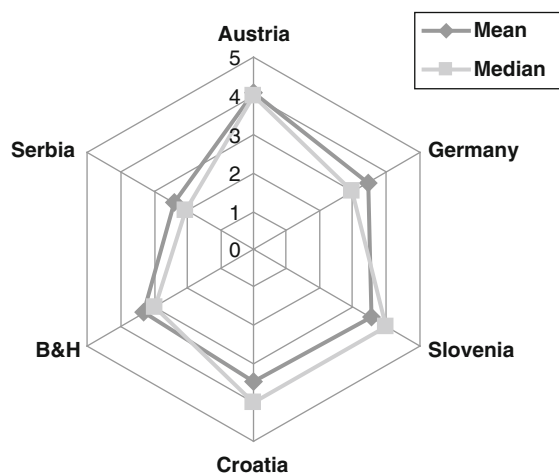


Fig. 3 Competences of forest professionals to answer on new demands/challenges

Discussion

The economic importance of forestry can be seen through its still-most-prominent role—timber production, even though modern forest management tends to care of social and environmental role of forests. In spite its often limited direct contribution to national economies there are many secondary contributions through related industries, employment in service sectors and especially its contribution to rural development (Motik and others 2005). Given the fact that socio-economic conditions depend heavily on the environment in which they are formed one could expect differences in forest policy between countries with contrasting environmental, social and economic aspects. Additionally differing views of stakeholders on forest management goals and forest functions would be assumed (Hogl 2002). As new economies of South-east Europe are queuing to join the European Union national legislations are rapidly taking into account EU requirements (Herbst and others 2008). Common characteristics of all countries in this study are general relevance for sustainable forest management issues and the importance of productive forest functions. Results allow in some cases interpretation according to two groups of countries—member and non-member, but there are also cases with mixed groups regardless their member status. However, there is general consensus among all countries concerning the importance of “timber production” (Table 5).

The forest sector is influenced by EU legislation and policy processes (Herbst and others 2008). The responsibilities for the implementation of the international commitments, principles and recommendations of the EU Forestry Strategy are found in the countries themselves (Bauer and others 2004). Forest acts in participating countries define similar aspects of forest management as well as nature protection issues to national forest policies. Slovenia, as a relatively new member country, as well as non-member countries (Croatia and Serbia) has adopted new forest legislation since the political overturn in the early 1990s. These changes in legislation are related to constitutional changes coming along with the process of becoming a part of EU and also transition to modern market economy. Essential rules for the interaction between forests and society have been set up, taking into account experiences from the past as well as from western European countries (Bauer and others 2004). The analysis of instruments and tools that are currently used in forest legislation shows that there is a great deal of commonality among forest and environmental policies adopted in the 1990s in non-member countries (Le Master and Owubah 2000; Mekouar and Castelein 2002).

In order to raise public awareness on forestry issues and involve the public in forest-related decision-making

processes the dialogue process “Nationales Waldprogramm für Deutschland” (National Forest Program for Germany) was started in 1999. Workshops, open panels and discussions formed the backbone of the National Forest Program, and recommendations for action were formulated, targeted at the Federal Government, the Federal States, and other stakeholders (Zimmermann and Schmithüsen 2002). A similar approach was taken in Austria with the “Walddialog” (Forest Dialogue) which helped to formulate strategies and guidelines for forest-relevant fields of action of the Austrian forest program starting in 2003 (BMLFUW 2009). These are examples of a “bottom-up” policy process, reversing the traditional role of law-makers and major stakeholders, bringing the decision-making power directly back to those most interested in its outcome, simultaneously providing the necessary frame, raising the quality of decisions and streamlining the whole process. Such measures can be formulated as one of the policy recommendations for non-member countries.

Given the great natural and socio-economic diversity of forest conditions in Europe, the key for ensuring sustainable forest management and the multifunctional role of forests is the development of a decentralized integrated approach (a ‘bottom up approach’ and ‘multi-stakeholder process’) (Schmithüsen 2003). A reasonable balance between overlapping but often conflicting interests in multi-purpose forestry at the regional and local levels can therefore be reached. Therefore, public participation in decision-making process should be introduced in order to favor a dialogue in civil society on all forestry related topics.

The expectation of the general public, particularly among urban dwellers, is that forests are managed primarily to deliver social and environmental benefits, even though forests cannot attain their full wood production potentials. Other expectations are related to the assumption that forests will be managed on a sustainable basis when coping with the principles of close to nature silviculture as much as possible. As living standards increase and basic economic expectations are fulfilled, there is a greater demand for non-market amenities from forests including recreation, landscape enhancement and nature conservation (Spieker 2003).

Conclusions

The presumed importance of socio-economic influence on policy processes has been partially confirmed although with different strength, in each country. A presumed clear distinction between member and non-member countries has not been found. More often there is consensus among all countries, like in cases of “Main threats to the forests”

and “Importance of productive forest function”, than differentiation.

Different grouping of countries than expected (member and non-member countries) in cases of the “Main forest functions” (with exception of “productive function”) and “New emerging topics” is result of stronger influence of historical and traditional conditions over socio-economic.

The importance of “Main forest functions” and strong influence of forestry on them confirms the fact that forestry in studied countries is focused not only on traditional forest functions but on ecological functions as well, what is clear evidence that policy changes are taking place, although not according to our expectation but in similar manner in mixed groups of countries.

Forest managers are facing challenges in fulfilling the demands raised by the general public and constrained by the timber markets in Central and South-east Europe today. The perceived professional competencies were not high in all cases, demonstrating a lack of confidence in decision making processes related to the changed role of forestry. Therefore a need for professional decision support in the forestry sector is evident (Rauscher and others 2007, Fürst and others 2009) although it was not clearly stated, by this study.

Based on this observation, two possible options for future development of the forest sector and its management can be foreseen: (i) focusing on the productive function of forests and fostering a sustainable use of all forest resources in responding to growing societal needs as well as challenges of climate change and nature protection or (ii) putting an emphasis on environmental and social issues and adopting close-to-nature forest management as means for a sustainable forest management. In Both cases supporting public participation in decision-making processes is recommended. Even though policy makers in non-member countries ranked the “Growing participation of different interest groups” as the third most negative change, in our opinion supporting public participation is of up most importance.

A further analysis of the applied policy tools should be based on a full cooperation between research institutions and bodies in charge of forest management in both private and public domains. The research activities should be strongly focused on level and successfulness of policy implementation and realigned to reach a better understanding of decision-making process.

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References

- Agenda 2000 (1997) Volume 1: for a stronger and wider EU. Volume 2: the challenge of enlargement. Office for Official Publications of the European Communities, Luxembourg, Cat. No. CB-CO-97-379-EN-C and CB-CO-97-380-EN-C
- Austrian Forest Act (1975) Amended BGBl.I Nr. 55/2007
- Bauer L, Kniivilä M, Schmithüsen F (2004) Geneva timber and forest discussion paper 37, forest legislation in Europe: how 23 countries approach the obligation to reforest, public access and use of non-wood forest products. A study implemented in the framework of the European Forest Sector Outlook Study (EFSOS), FAO
- Birou Y, Buttoud G, Flies R, Hogl K, Pregernig M, Paivinen R, Tikkanen I, Krott M (2002) Voicing interests and concerns: institutional framework and agencies for forest policy research in Europe. *Forest Policy and Economics* 4:333–350
- BMLFUW (2009) 6 Jahre Österreichischer Walddialog, Erwartungen, Ergebnisse, Perspektiven, Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft (BMLFUW), Wien, p 48
- Borg WR, Gall MD (1989) Educational research: an introduction, 5th edn. Longman, White Plains, NY
- European Climate Change Programme (2005) www.ec.europa.eu/environment/climat/pdf/eccp/impactsadaptation/agriforestry.pdf
- European Environment Agency (2005) The European environment—state and outlook 2005, Copenhagen
- FAO (2001) Forestry legislation in central and eastern Europe: a comparative outlook. FAO Legal Papers Online 23
- FAO (2006) Contribution of the forestry sector to national economies, 1990–2006
- Führer E (2000) Forest functions, ecosystem stability and management. *Forest Ecology and Management* 132(1):29–38
- Fürst C, Lorz C, Vacik H, Potočić N (2009) How to support forest management in a world of change: results of some regional studies. *Environmental Management*. doi:10.1007/s00267-009-9360-2
- Glück P (1999) National forest programs—significance of a forest policy framework. In: Glück P, Oesten G, Schanz H, Volz K-R (eds) Formulation and implementation of national forest programs, volume I: theoretical aspects. European Forest Institute, Joensuu, pp 39–52
- Herbst P, Mekić F, Avdičević M, Schmithüsen F (2008) Forstwirtschaft und Forstrecht in den Reformstaaten Mittel- und Osteuropas 1990–2007. Forstwirtschaftliche Fakultät der Universität Sarajevo, Bosnia and Herzegovina, p 180
- Hogl K (2002) Patterns of multi-level co-ordination for NFP-processes: learning from problems and success stories of European policy-making. *Forest Policy and Economics* 4(4):301–312
- Intergovernmental Panel on Climate Change (2007) Contribution of working groups I, II and III to the fourth assessment report of the IPCC. In: Core writing team, Pachauri RK, Reisinger A (eds) Geneva, Switzerland, 104 pp
- Kissling-Näf I, Bisang K (2001) Rethinking recent changes of forest regimes in Europe through property-rights theory and policy analysis. *Forest Policy and Economics* 3(3–4):99–111
- Koupelevatskaya-Yunusova I, Buttoud G (2006) Assessment of an iterative process: The double spiral of re-designing participation. *Forest Policy and Economics* 8(5):529–541
- Le Master DC, Owubah CE (2000) Nation states and forest tenures—an assessment of forest policy tools in eastern European countries. In: Schmithüsen F, Herbst P, Le Master DC (eds) Forging a new framework for sustainable forestry: recent developments in European forest law, IUFRO world series, vol 10. Secretariat Vienna; Chair of Forest Policy and Forest Economics, ETH, Zürich, pp 28–38
- Lin AC, Loftis K (2005) Mixing qualitative and quantitative methods in political science: a primer, paper presented at the annual meeting of the American political science association, Washington, DC. http://www.allacademic.com/meta/p41971_index.html
- MCPFE (1998) Third ministerial conference on the protection of the forests in Europe. General declaration and resolutions adopted. Liaison Unit Lisbon. www.forest-europe.org/filestore/mcpfe/Conferences/Lisbon/lisbon_resolution_11.pdf
- Mekouar A, Castelein A (2002) Forestry legislation in central and eastern Europe: a comparative outlook. In: Schmithüsen F, Iselin G, Le Master D (eds) Experiences with New forest and environmental laws in European countries with economics in transition. Forstwissenschaftliche Beiträge 26, ETH, Zürich, p 184
- Motik D, Posavec S, Vuletić D (2005) Chapter Croatia in economic integration of urban consumers demand and rural forestry production, forest sector entrepreneurship in Europe: country studies (COST E 30). Acta Silv Lign Hung, Special Edition 1:103–145 Sopron
- National Forest Program, Germany, <http://www.nwp-online.de/index>
- National Forest Program, Slovenia, Official Gazette of RS, no. 111/07
- National Forestry Policy and Strategy, Official Gazette, no. 120/03
- Natura (2000) Habitats directive 92/43/EEC, www.natura.org, http://ec.europa.eu/environment/nature/index_en.htm
- Paladinić E, Vuletić D, Posavec S (2008) Review of the state of private forest ownership in the Republic of Croatia. Works of Forest Research Institute Jastrebarsko 43(1):1–74
- Parviainen J, Frank G (2003) Protected forests in Europe approaches—harmonizing the definitions for international comparison and forest policy making. *Journal of Environmental Management* 67(1):27–36
- Patriquin MN, Parkins JR, Stedman R (2007) Socio-economic status of boreal communities in Canada. *Forestry* 80(3):279–291
- Rauscher HM, Schmoldt DL, Vacik H (2007) Information and knowledge management in support of sustainable forestry: a review. In: Reynolds K, Rennolls K, Köhl M, Thomson A, Shannon M, Ray D (eds) Sustainable forestry: from monitoring and modelling to knowledge management and policy science. CAB International, Cambridge, pp 439–460 ISBN 9781845931742
- Schmithüsen F (2003) The global revolution in sustainable forest policy a European perspective. In working papers, international series, forest policy and forest economics. Department of Forest Sciences Swiss Federal Institute of Technology, vol 03(2). ETH, Zurich, pp 1–23
- Spieker H (2003) Silvicultural management in maintaining biodiversity and resistance of forests in Europe—temperate zone. *Journal of Environmental Management* 67(1):55–65
- Stupak I, Asikainen A, Jonsel M, Karlton E, Lunnan A, Mizraite D, Pasanen K, Pärn H, Raulund-Rasmussen K, Röse D, Schroede M, Varnagiryte I, Vilkrste L, Callesen I, Clarke N, Gaitnieks T, Ingerslev M, Mandre M, Ozolincius R, Saarsalmi A, Armolaitis K, Helmisaar H-S, Indriksons A, Kairiukstis L, Katzensteine K, Kukkola M, Ots K, Ravn HP, Tamminen P (2007) Sustainable utilisation of forest biomass for energy—Possibilities and problems: policy, legislation, certification, and recommendations and guidelines in the Nordic, Baltic, and other European countries. *Biomass and Bioenergy* 31(10):666–684
- Water Framework Directive 2000/60/EC, European Parliament OJ L 327, 22.12.2000, pp 1–73
- Zimmermann W, Schmithüsen F (eds) (2002) Legal aspects of national forest programmes. Forest science contributions of the chair forest policy and forest economics, vol 25. Swiss Federal Institute of Technology, ETH, Zurich